Simple MatLab commands

% - COMMENTS (these are v, helpful)

% Arrays
a=[1 2; 3 4];
a   { the MatLab echo response if no " ; "

% another method
a=[1 2 3 4]

% multply matrix by itself
a*a
b = [1 2; 0 1];

%let's calculate the product
a*b

% is multiplication commutative?
b*a

%let's calculate the sum
s=a+b

% is sum commutative?
b+a

%let's calculate the inverse
inverse=inv(s)
% check that this is correct
s*inv(s)
% calculate the determinant of a
determinant_a=det(a)

% enter a 4 x 4 matrix
a=[1 4 6 7; 3 6 8 3; 12 8 9 0; 3 7 9 1]
% sum elements along columns
sum(a)
% sum elements along rows: transpose
a'
sum(a')
% diagonal
diag(a)
sum(diag(a))
% antidiagonal
fliplr(a)
diag(fliplr(a))
sum(diag(fliplr(a)))
% display element on row 3 column 4
a

```matlab
element=a(3,4)
% another method
a(15)
% adding an element row 3 column 5
a(3,5)=17
a

% create a vector
a=[0 1 2 3 4 5 6 7 8 9 10]
% or
a=[0 1,2,3,4,5,6,7,8,9,10]

% create a vector: use :
a=0:10
% spacing is 2
a=0:2:10
% spacing is 2 starting from 10 and decreasing
a=10:-2:0

% with pi
a=0:pi/4:2*pi

% array addressing
% select sixth element
element6=a(6)
% select the first 4 elements of a
b=a(1:4)
% select the 5th element to the last element
b=a(5:end)
% start from the 6th element and count down by 2
b=a(6:-2:1)
% extract the elements that we want
b=a([9 5 2])

% constructing arrays
a=(0:1:10)
% or
a=(0:0.1:1)*10

% using linspace(firstValue,lastValue,numberOfValues)
a=linspace(0,10,11)
% using logspace(firstExponent,lastExponent,numberOfValues)
a=logspace(0,2,11)

% create two arrays a and b
a=1:5,b=1:2:9
% concatenate the b and a
c=[b a]
% mix and match
d=[(6:2:10) 1 0 1]
```

```
% creating column vectors
a=[0;1;2;3;4;5]
% transpose
a=0:5,b=a'
% for imaginary numbers
b=a+i*2*a
% transpose: will give complex conjugate transpose
c=b'
% dot transpose: will give non-complex conjugate transpose
c=b.'
```